

BRIEFER ARTICLES.

NOTES ON NORTH AMERICAN GRASSES.

III. NEW SPECIES OF WILLKOMMIA. (WITH TWO FIGURES.)

Willkommia texana Hitchc., n. sp.—A tufted perennial. Culms smooth, a foot or two high, erect from a decumbent base. Radical

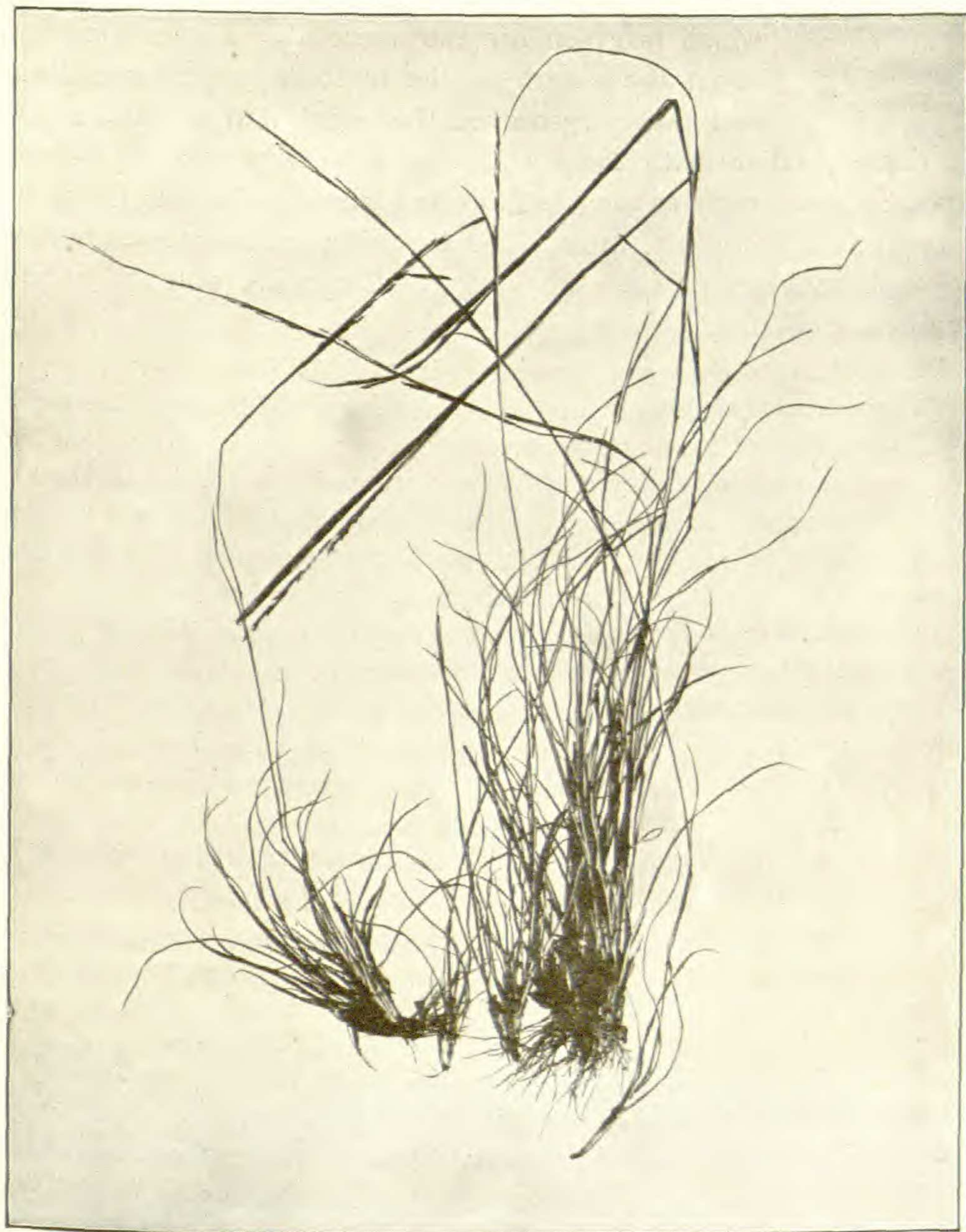


FIG. 1.—*Willkommia texana* Hitchc.

leaves several, 3 or 4 inches long, involute, tapering to a sharp point, upper surface rough, margin scabrous, otherwise smooth. Stem leaves few, the upper larger and embracing the lower part of the panicle. Inflorescence a panicle of spikes, a few inches to a foot long. Spikes several, an inch or two long, distributed along the axis. Spikelets

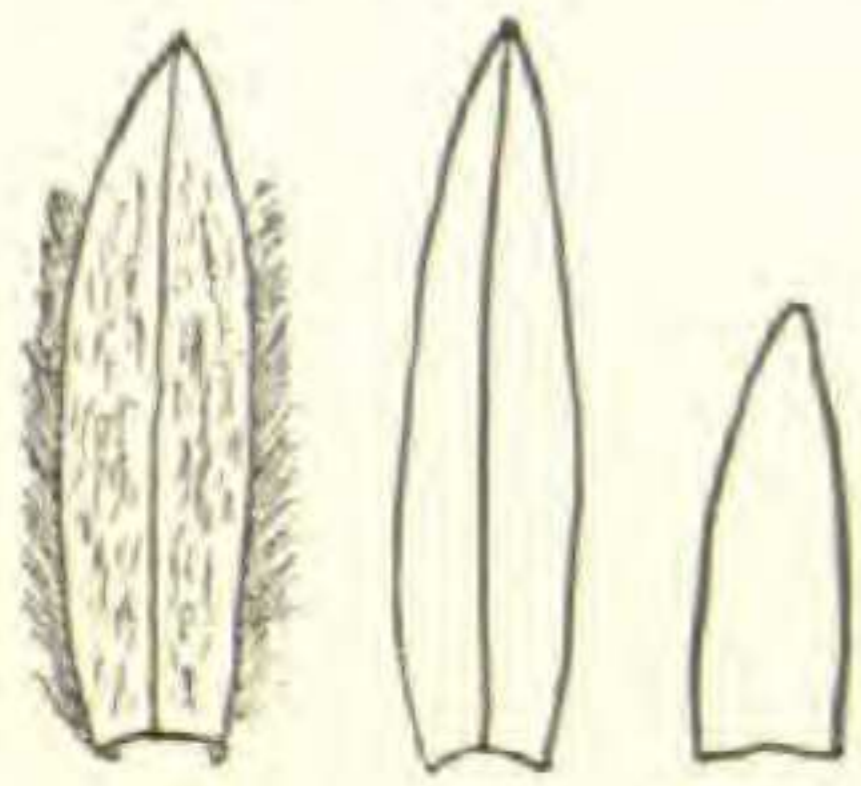


FIG. 2.—Details of flower.

several, arranged in two rows along one side of a flattened axis, 1-flowered, appressed. Empty glumes 2, 1-nerved, smooth, thin, and light colored, pointed but not awned, lower about half as long as upper, which is green on the margins. Flowering glume about the length of the upper empty glume, obtuse and awnless, 3-nerved, the lateral pair near the margin and densely ciliate with long white hairs, also pubescent between nerves. Palea nearly as long as flowering glume, 2-keeled, the nerves ciliate like the flowering glume. The base of the flower extends down into a short, hairy callus. Stamens 3. Caryopsis oblong, smooth, margined, and apiculate above.

DISTRIBUTION: Ennis and Beeville, Texas, *J. G. Smith*, 1897.

The specimens were found among the undetermined forms of *Leptochloa* in the Herbarium of the U. S. Department of Agriculture. The plant from Ennis may be considered the type. I have referred this species to Hackel's genus *Willkommia* as it agrees with the description in all essential particulars, and in generic characters with the specimen of *Willkommia annua* which is in the Department Herbarium. In floral characters it differs chiefly in the awnless flowering glume. The distribution of the genus is peculiar, as the three previously described species occur in west South Africa.

The genus *Willkommia* was described by Hackel, *Verh. Bot. Ver. Brandenburg* 30: 145. 1888. This name had already been applied to a group of *Compositæ* (*Sch. Bip. ex Nym. Consp.* 357. 1879), which is now generally referred to *Senecio*. Hackel was aware of this, but, from the fact that the earlier name was now a synonym, considered himself justified in taking up the same name for his new genus of grasses.

This genus is allied to *Schedonnardus* Steud. and *Craspedorachis* Benth., but is distinguished from the former by the broad, hyaline, unequal empty glumes and the densely ciliate flowering glume and palea, and from the latter by the unequal empty glumes and the flowering glume as long as the upper empty glumes. *Craspedorachis* has equal empty glumes twice as long as the flowering glume and palea.

I am of the opinion that *Willkommia* should be referred to *Craspedorachis* Benth. (*Hook. Icon. Pl. III.* 4: 58. *pl.* 1377. 1882), but as Hackel, who has had the opportunity of examining all the African species, has kept the two genera separate I have done the same.

Hackel describes a second species of *Craspedorhachis*, *C. Menyharthii*, Bull. Herb. Boiss. II. 1: 770. 1901, from southeast Africa, in which the flowering glume is only one-fourth to one-fifth shorter than the outer glumes, thus making the difference less between our plant and the genus *Craspedorhachis*.—A. S. HITCHCOCK, *Bureau of Plant Industry, U. S. Department of Agriculture*.

THE MORPHOLOGY OF SPORE-PRODUCING MEMBERS.

[In view of the fact that Professor Bower's last paper,¹ which contains the general conclusions from his studies of spore-producing members, is not likely to appear for some time, we venture to publish in advance the following abstract of the memoir, which was read before the Royal Society on February 12, 1903, and kindly communicated to us.—EDS.]

THIS concluding memoir contains a general discussion of the results acquired in the four previous parts of this series, and of their bearing on a theory of sterilization in the sporophyte. The attempt is made to build up the comparative morphology of the sporophyte from below, by the study of its simpler types; the higher and more specialized types are left out of account, except for occasional comparison. It is assumed for the purposes of the discussion that alternation of generations in the Archegoniatae is of the antithetic type, and that apogamy and apospory are abnormalities, not of primary origin.

After a brief allusion to facts of sterilization in the sporogonia of bryophytes the similar facts are summarized for the pteridophytes. It has been found that examples of sterilization of potentially sporogenous cells are common also in vascular plants, while occasionally cells which are normally sterile may develop spores. Hence it is concluded that spore-production in the archegoniate plants is not in all cases strictly limited to, or defined by, preordained formative cells, or cell-groups. A discussion of the archesporium follows, and though it is found that in all Pteridophyta the sporogenous tissue is ultimately referable to the segmentation of a superficial cell, or cells, still in them, and indeed in vascular plants at large, the segmentations which lead up to the formation of spore mother cells are not comparable in all cases; in fact, that there is no general law of segmentation underlying the existence of that cell or cells which a last analysis may mark out as the "archesporium"; nor do these ultimate parent cells give rise in all cases to cognate products. Therefore it is concluded that

¹BOWER, F. O., Studies in the morphology of spore-producing members. No. V. General comparisons and conclusions.